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AN ARCHEOLOGICAL SURVEY OF AREAS TO BE IMPACTED BY THE DREDGING OF BROADWAY LAKE, ANDERSON COUNTY, SOUTH CAROLINA

by

Mark J. Brooks

Research Manuscript Series, No. 117

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Prepared by the
INSTITUTE OF ARCHEOLOGY AND ANTHROPOLOGY
UNIVERSITY OF SOUTH CAROLINA
September, 1977

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Various staff members at the Institute contributed greatly to the completion and success of this project. Dr. Robert L. Stephenson, Institute Director, and Dr. Paul E. Brockington, Jr., Environmental Impact Archeologist, made valuable comments and suggestions throughout all phases of the project. Dr. Albert C. Goodyear and Mr. John H. House provided many helpful insights into South Carolina Piedmont prehistory.

Other Institute staff also made important contributions. Mr. Darby Erd, Institute Artist, prepared Figure 1. The photographs, Figures 2-5, were developed and laid out by Institute Photographer Gordon Brown. The finished report was edited by Miss Susan Jackson, Editorial Assistant. Finally, the manuscript was typed by Mrs. Sue Jane Alsing.

MANAGEMENT SUMMARY

The Broadway Lake Archeological Survey was conducted from May 26 through May 31, 1977, in compliance with the National Environmental Policy Act of 1969 (NEPA) and Executive Order 11593, and was funded by the U.S. Army Corps of Engineers. The purpose of the survey was to examine for archeological resources, those areas designated to receive spoil from the dredging of Broadway Lake. Since the lake's construction in 1940, extensive erosion of the adjacent slopes has resulted in the accumulation of considerable amounts of sediment in the lake bottom, necessitating the proposed dredging operation.

Broadway Lake is located in Anderson County and is situated in the Piedmont portion of South Carolina. The region is known to have been occupied by prehistoric Indians as early as 12,000 years ago. Historic occupation of the area by people of European and African descent began in the mid-eighteenth century. By the early nineteenth century the region had become a major cotton-producing area of the South. The extensive land clearing and intensive agriculture of the Historic period created vast areas of secondary growth and brought about the extensive erosion seen today throughout most of the South Carolina Piedmont, and the area around Broadway Lake in particular.

Due to the dense vegetation, it was impossible to survey completely the areas to be impacted by the dredging in the time alloted. Consequently, a selective non-random sampling strategy was implemented involving sub-surface testing and the examination of exposed ground surfaces. Site potential was the major variable considered in determining the survey strategy.

Two archeological sites were located during the course of the survey and were characterized by low-density lithic scatters. These sites appear to represent hunting activities of the Archaic period, ca. 10,000-4,000 years B.P. A third possible site, known locally as the "Indian Mound," was also examined. At present, this site is partially inundated by the high water level in Broadway Lake. An examination of the exposed portion of the site revealed no archeological remains. Although these sites contributed little substantive information, the Archaic sites appear to fit well into the existing model developed by House and Ballenger (1976) for the Archaic period of South Carolina Piedmont prehistory.

Due to the low-density of archeological material at both Archaic sites, and the eroded condition of one of these sites (38AN91), it is felt that additional collecting and/or excavation of these sites would contribute little additional information of scientific value. Consequently, no additional archeological investigation is recommended for these sites. Similarly, neither site is considered eligible for placement on the National Register of Historic Places.

The "Indian Mound," as well as the low-lying portions of the survey areas adjacent to the lake, should be examined/reexamined when the lake level is dropped between January 1 and the end of March, 1978. In this way, it will be possible to assess, and to make recommendations concerning the archeological significance, if any, of the "Indian Mound," as well as any archeological sites that may be encountered that are presently inundated and/or buried under lake sediments.

INTRODUCTION

The United States Army Corps of Engineers, Savannah District, is proposing the dredging of Broadway Lake in Anderson County, South Carolina. The need for this dredging has come about as the result of an extensive accumulation of sediment in the lake from the adjacent erosional slopes, resulting in turn from poor land management and agricultural practices during the last 200 years. Consequently, Broadway Lake has been filling up with erosional sediments since the lake was initially formed in 1940 when the W.P.A. constructed a dam at the confluence of Broadway Creek and Neals Creek. During May 26 through May 31, 1977, the Institute of Archeology and Anthropology, University of South Carolina, conducted an archeological reconnaissance survey of those areas adjacent to Broadway Lake that are the proposed locations of spoil from the dredging operations. The intent of this archeological survey was to locate and evaluate the archeological resources that might be affected. Figure 1 shows the location of these areas, designated as Survey Tracts I-VIII, as well as reconnaissance transects and discovered site locations.

Broadway Lake is situated in the South Carolina Piedmont, which, in general, is characterized by broad, flat ridgetops and narrow riverine zones. Small streams and intermittent waterways bisect the inter-riverine ridgetop regions and drain into the larger rivers. This physiographic division of the Piedmont into riverine and inter-riverine zones is thought to be correlated with differential prehistoric utilization of the environment (House and Ballenger 1976; Goodyear, Ackerly and House n.d.).

From the end of the Pleistocene Epoch to the time of European colonization the Piedmont was covered by an oak-hickory forest, however, extensive land clearing and intensive agriculture during the historic period has resulted in a nearly total replacement by oak-pine forest (Braun 1950). Figure 2 illustrates the principle of ecological succession after forest clearing has taken place. Given time, and no additional interference by man, this field would eventually evolve into an oak-pine forest.

The severe erosion accompanying the intensive agriculture in the Piedmont has brought about the removal of much of the topsoil, exposing the underlying red clay (Fig. 3) (Trimble 1974). Figure 4 shows contemporary efforts to halt the continuing erosion by encouraging growth of cover plants such as kudzu.

Figures 2-4 were taken at various locations in Survey Tract I, the only survey area exhibiting heavy erosion and early stages of ecological succession. The remaining survey tracts are predominantly in secondary growth oak-pine forest.

Although it is commonly accepted that the South Carolina Piedmont has been inhabited by various groups of people on a general evolutionary continuum from simpler to more complex societies for at least 12,000 years, much of South Carolina Piedmont prehistory has been inferred from the archeological work undertaken in the adjacent states of Georgia and North Carolina. For example, Willey (1966) and Griffin (1967) have

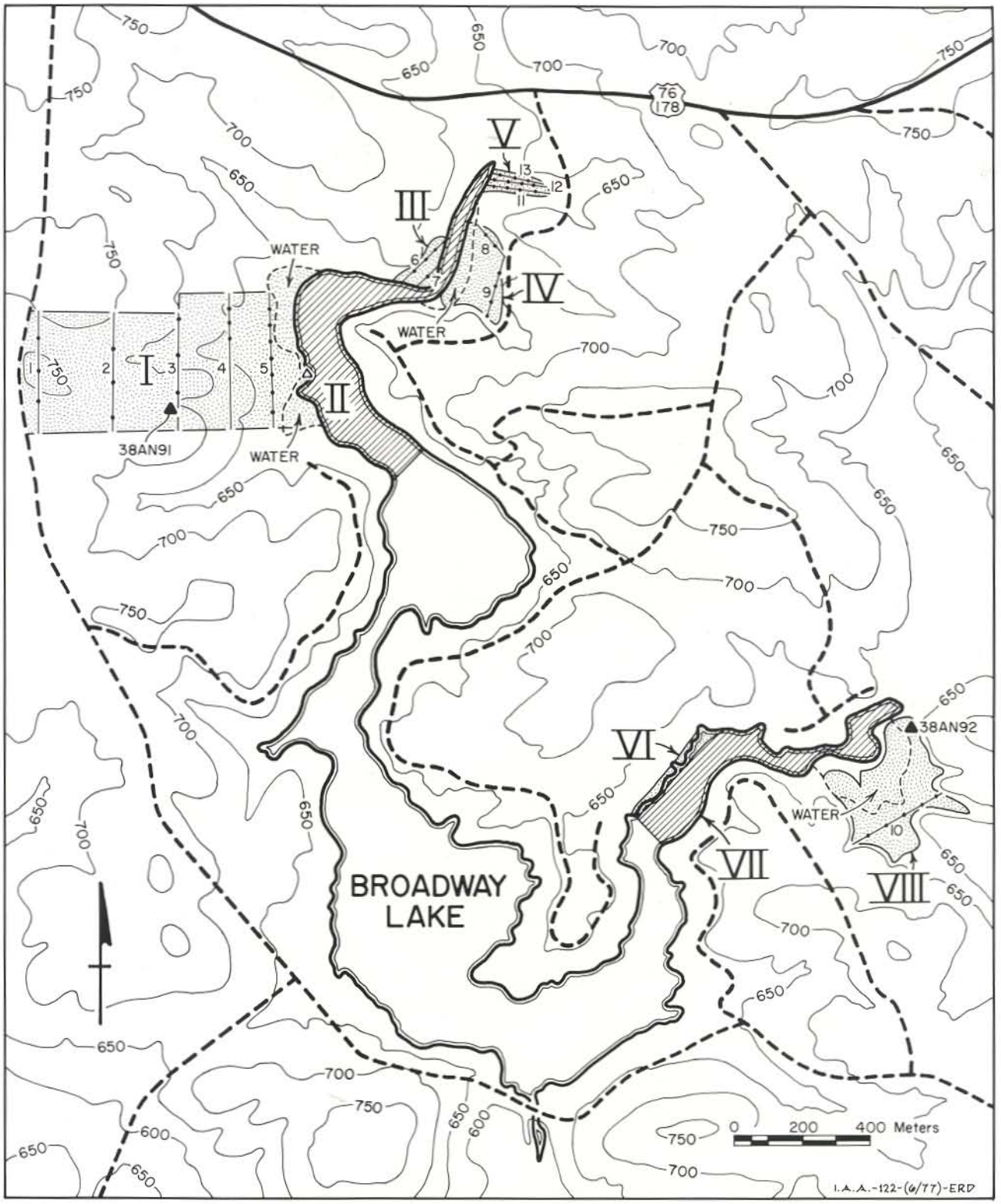
BROADWAY LAKE
WATER
WATER
WATER
38AN91
38AN92
I
II
III
IV
V
VI
VII
VIII
76
178
0 200 400 Meters
I.A.A.-122-(6/77)-ERD
DREDGED AREAS
FILL AREAS
POSSIBLE SITE
PRIMARY ROADS
SECONDARY ROADS
TRANSECTS WITH POSTHOLES
SITE

FIGURE 1

FIGURE 2. West End of Tract I Looking Southeast, Showing Ecological Succession After Forest Clearing.

FIGURE 3. East End of Tract I Looking Northwest, Showing the Results of Heavy Erosion.

FIGURE 4. Southeast Portion of Tract I Looking Northwest, Showing Contemporary Efforts to Halt Erosion.

FIGURE 5. East End of Tract I Looking East, Showing the Partially Inundated "Possible Site."

synthesized elaborate culture-historical reconstructions of the prehistory of the entire eastern North American continent. More relevant to this project, however, are the recent studies conducted by the Institute aimed specifically at culture-historical discussions of the South Carolina Piedmont (House and Ballenger 1976: 23-29; Goodyear, Ackerly, and House n.d.).

These latter two studies of South Carolina Piedmont prehistory are, in effect, particularistic efforts to test the general models offered by the broad, culture-historical reconstructions of prehistoric systematics in the Piedmont of the eastern woodlands, and at the same time, have been used to formulate specific models for the South Carolina Piedmont in particular. This approach produces a continuous feedback situation by which models at various levels of abstraction are refined, modified, or rejected by particularistic research. In turn, such models serve as a foundation for refining and directing research objectives. Through this feedback situation, new problems considered relevant for study may be suggested and hypotheses formulated to be tested against the archeological record. It is through this directed, ongoing research that our knowledge and understanding of the systematics in South Carolina Piedmont prehistory will be furthered. Although the Broadway Lake survey contributed little substantive information to ongoing South Carolina Piedmont research, the two sites encountered tend to support the existing model of differential utilization of the environment according to riverine and inter-riverine physiographic zones. A consideration of the significance of these archeological resources will be presented later in this report.

SURVEY METHODS

The historical and environmental factors discussed earlier had a direct effect on the archeological reconnaissance of the proposed spoil areas for the Broadway Lake dredging project. Without exception, all exposed ground surface was eroded, revealing the red clay substrate on the tops of rises and slopes. Archeologically, this is a mixed blessing; although buried materials are exposed for surface discovery, the distributional integrity of the materials is destroyed by the same process (Wogaman 1977).

The major impediment encountered during the reconnaissance was the dense vegetational ground cover. Unless there is some degree of ground surface visibility, it is virtually impossible to locate most archeological sites by surface examination alone. Less than 10% of the survey area had any degree of visibility. Eroded slopes, paths, pipeline cuts, and road cuts provided the little ground visibility present. Consequently, limited subsurface testing was necessary. Given the constraints of time, personnel, and field conditions, extensive subsurface testing was not feasible. Operating under these constraints, it is highly unlikely that all archeological sites occurring within the proposed impact areas were located. Nevertheless, survey coverage was sufficiently systematic and intensive to allow us reasonably to say that no large sites went undetected, and that the sites located are likely representative of the functional range of sites within the survey areas.

The entire sampling strategy employed during the Broadway Lake survey was selective, non-random. Site potential was the major variable considered in determining the survey strategy. This variable was selectively evaluated in terms of topography, elevation, slope, and proximity to Broadway Lake/Creek. Thus, relatively high, level areas overlooking the lake/creek, or its tributaries and intermittent drainages, were considered to have the highest site potential.

There are eight areas of proposed impact which were designated as Survey Tracts I-VIII. Tracts II and VII are the areas to be dredged and are under water. Tract VI is a portion of the golf course at Pine Lake Golf Club. Although no subsurface testing way undertaken in Tract VI, the few exposed ground surface areas were examined. For Tracts I, III, IV, V and VIII, which are the areas designated to receive the spoil from the dredging, the first phase of the survey strategy involved the use of a total of 13 transects for the five areas, with post-holes dug at 50 or 100 meter intervals for subsurface testing. The number of transects within a given survey tract, their location, length, spacing, and the posthole interval were dependent upon a consideration of three major factors. These were: (1) site potential, (2) size and shape of the area, and (3) the ease of accurately locating and utilizing known landmarks appearing on available maps. Other factors considered were sampling dispersion, kind and density of vegetation cover, and the amount of exposed ground surface.

Thus, in areas such as the western portion of Tract I, which exhibited considerable amounts of exposed ground surface and was thought to have low site potential, transects were widely spaced. For the same reasons, this was the only area where transect postholes were spaced. at 100 rather than 50 meter intervals. In addition, transect posthole and supplemental posthole subsurface testing was not carried out in the southeastern portion of Tract I, due to the presence of a field of dense Kudzu (Fig. 4). Even if survey in this portion had been feasible, and archeological remains were recovered, the distributional integrity of these remains would be negligible, given the severe erosion factor.

After each tract was surveyed by means of transects and by examining all exposed ground surface, supplemental postholes were selectively excavated in areas that had not been previously sampled in order to increase sampling dispersion. Supplemental subsurface testing was also conducted in previously sampled areas thought to have high site potential, but had failed to produce any archeological remains.

On the slopes and ridge tops of Survey Tracts I and III postholes were typically excavated 10-15 cm into the red clay-quartz substrate. In most instances, the red clay was the uppermost horizon, since the top soil had generally been eroded away. However, on the slopes and ridges of Survey Tracts IV, V, and VIII postholes were excavated to a depth of 40 to 50 cm where possible. In these areas, much of the gray to tan topsoil was still in place due to forest cover. Unfortunately, subsurface testing was severely hindered by dense concentrations of angular quartz rock. In the low-lying areas of Tracts I, III, IV, V, and VIII, which were typically in wooded marsh along the lake border, the depth of subsurface testing varied from as little as 15 cm in the black muck areas to 30-40 cm in the quartz sand topsoil from the adjacent eroded slopes. Soil removed from all posthole testing was carefully inspected by troweling for artifacts.

In addition to providing evidence for the presence or absence of archeological remains, subsurface testing was also a valuable source of information on the soil characteristics of the area. Special attention was paid to erosion, as this is felt to be of particular significance to an accurate evaluation of existing archeological resources in terms of natural and cultural formation processes (Schiffer 1976). Vegetation was also recorded in an attempt to gain a better understanding of the various stages of ecological succession that the survey area is undergoing. This provides an additional line of evidence for evaluating the impact on archeological sites in the area up to this point and, given the dredging operation to take place, allows us to predict the nature and extent of future impact. Further, and of more direct archeological significance, existing vegetation may also be utilized to retrodict the nature of the original climax forest. In this way we can better understand site/settlement location in terms of a systematic adjustment to the prehistoric resource base.

ARCHEOLOGICAL SITE DATA

Two sites were located during the Broadway Lake archeological survey. They are likely of the Archaic Period and in the general time range of 4,000 to 10,000 years B.P., although this is not conclusive. Similar prehistoric sites have been previously recorded for this area of the South Carolina Piedmont (House and Ballenger 1976; Goodyear, Ackerly and House n.d.; Wogaman 1977). This similarity is in types of lithic debitage, lithic raw material, density of lithic material, and site physiographic setting, as well as an apparent lack of ceramics. The difficulty in determining temporal placement is due to an absence of any diagnostic artifacts recovered. Both sites are located well within the impact area.

As considered here, an archeological site is an area at which prehistoric artifacts, and/or the debitage resulting from artifact manufacture or recycling, are found. All archeological material observed on exposed ground surfaces and encountered during subsurface testing was collected. Had the ground surface visibility been greater, and the density of archeological material higher, it may have been necessary to implement an intrasite sampling design. Both sites, however, appear to represent low-density lithic scatters and, therefore, it was both feasible and desirable to collect all material observed. Although the material collected cannot be viewed as being statistically representative of the sites or their contents, the advantage to collecting all observed material, especially in instances such as this where material is sparse, is that it puts us in a better position to make more reliable temporal and/or functional inferences from meager data. Archeological material collected during the Broadway Lake project was analyzed by utilizing the typology developed by House and Ballenger (1976: 89-93).

38AN91. This site is located in the south-central portion of Survey Tract I on the 720 foot contour and is represented by one quartz thinning flake and one quartz chunk scattered over an exposed ground surface area of 100 square meters. The material was lying on an eroded red clay surface, having a 5-10° slope toward the northeast. Subsurface testing was carried out to determine the nature and extent of the site. No additional material was encountered, suggesting that the site represents an extremely low-density lithic scatter over an area of undetermined original size. The lithic debitage suggests that the site functioned primarily as a locus for the initial stages of biface manufacture. Quartz raw material is abundantly available in the immediate vicinity in the form of large angular to rounded cobbles. The availability of raw material was no doubt an important variable in the determination of site location and function.

38AN92. This site is located in the northeast corner of Tract VIII on the 630 foot contour and is situated on a 5-10° slope, which drops to the west toward Broadway Lake. The known site area is approximately 50 square meters. Currently, the site and surrounding area are in oak-pine

forest. This is significant from the standpoint of site integrity in that the erosion in Tract VIII is minimal in comparison to that in Tract I, which is dominated by vegetation in early stages of ecological succession. Consequently, the original archeological context at 38AN91 has been destroyed by erosion, leaving the archeological materials on top of the more resistant red clay substrate. 38AN92, on the other hand, appears to be relatively intact with the exception of the erosional drainage to be discussed.

38AN92 is represented by two quartz thinning flakes, two quartz chunks, one other flake, and one large biface fragment in the initial stages of reduction. Initially, archeological material was encountered in the exposed banks of an intermittent erosional drainage, which empties into a small creek 30 meters to the west. This creek, in turn, empties into Broadway Lake. The quartz debitage came from a 10 meter long stretch of the drainage and varied from 0-30 cm below ground surface. Given the erosional factor and the slope of the drainage banks, it is likely that most if not all of the material migrated from a higher position than where observed. Subsurface testing in the immediate vicinity produced the large biface fragment just below the leaf litter at a location 5 meters south of the drainage. No additional material was found by subsurface testing.

All archeological material came from a tan, clayey sand, which is typically 0-30 cm below ground surface. Occasionally, a light gray surface organic zone extends to 10 cm below ground surface. Red clay is encountered at a depth of 30 cm. Although there are some naturally occurring quartz pebbles and cobbles in the tan sand zone, most of the quartz is on top of, and into, the red clay substrate.

As with 38AN91, 38AN92 represents a low density lithic scatter covering an area of undetermined extent. Similarly, the primary function of the site appears to have been oriented toward the initial stages of biface manufacture, utilizing the abundantly available quartz raw material from the immediate vicinity.

A third possible site should also be mentioned. It is located in Tract I at the tip of the projection of land extending furthest out into Broadway Lake. It is referred to by the residents of the area as the "Indian Mound." Currently, the site is cut off from the mainland by high water, with the mound forming a small, densely vegetated island of Broadway Lake (Fig. 5). A yearly fluctuation in water level of Broadway Lake is the result of dropping the lake level eight vertical feet on January 1 so that the lake front property owners can repair their docks. The lake level is raised again in March (Larry M. Gilreath, personal communication). Thus, during the time of the archeological survey the mound was cut off from the mainland by the higher lake level. Similarly, and for the same reason, some of the low lying areas of the lakeside portions of Tracts I, IV, VI and VIII were in wooded marsh or under water during the survey.

An attempt was made to examine the projectile points and ceramics purported to have been found eroding out of the sides of the mound when the lake level was down. The owners of these artifacts either could not be contacted, or if contacted, could not locate their artifacts from the site. On the other hand, Mr. Gilreath of the lake patrol, informed us that he had visited the site on a number of occasions during low water and had found nothing.

Currently, only the top of the site is exposed, with a surface area of 250 square meters (10 X 25 meters, oriented east-west). The top of the site is presently 50-60 cm above lake level. Vegetation includes mulberry (dominant), sweetgum, water oak, small shrubs, vines, and heavy leaf litter. There was no exposed ground surface.

Subsurface testing revealed red clay with quartz sand and pebbles throughout. An occasional quartz cobble was observed. The profile was fairly consistent throughout, becoming more saturated and gummier with depth. Water was encountered at 60 cm below surface. No archeological remains were found.

Remnants of pilings on the north side of the site indicates that there was a dock present at one time. It may be that the red clay was brought in and spread on top of the site at some point in the past in order to stablize it. Another possibility is that the red clay may be accumulation resulting from erosion upslope. At any rate, if there is an archeological horizon at the site it is either a sparse scatter of material which has eroded out onto the slopes of the site from on top of the remnant clay and found during low water level, or, there is a fairly recent clay capping over the archeological remains, which are eroding out of the sides of the site. Finally, the possibility cannot be precluded that the individuals who have collected the material from the site are incorrect in their belief that the remains are archeological. For example, it would be very easy for the uninformed to mistake the tabular, gray/brown quartz sand rock of the immediate vicinity for sherds.

ARCHEOLOGICAL SIGNIFICANCE AND RECOMMENDATIONS

Several constraints have restricted the evaluation of the archeological resources within the Broadway Lake project area. As previously mentioned, less than 10% of the proposed impact area had any degree of ground surface visibility. As such, the two sites located during the course of the survey likely represent only a percentage of the total archeological sites present within the project area. Given that the sites encountered are representative of most of the sites in the area, it is highly unlikely that subsurface testing was of great benefit in terms of increasing the probability of locating sites characterized by sparse lithic scatters. In short, it is doubtful that either of the sites located would have been found had it not been for ground surface visibility, even if subsurface testing had been conducted within the site confines. The inability to determine the spatial extent of the two sites illustrates the limitations of subsurface testing, especially when dealing with sites with sparsely distributed archeological remains.

An additional difficulty presented in evaluating the significance of these archeological resources is the paucity of archeological remains recovered, which results in a severely limited data base from which to draw inferences relevant to temporal and functional interpretations. At a higher level of interpretation the meager data base presents even greater difficulties in terms of inferring the functional roles of these sites within their total settlement and subsistence systems. That is, as inferences become further removed from the data base, especially when we are dealing with interpretation at the broader systems level, they become more tenuous. Consequently, interpretations should be critically evaluated with this limitation in mind. In spite of the minimal data, however, the two apparent Archaic sites located during this project appear to fit well into the Piedmont model developed by House and Ballenger (1976) as loci of inter-riverine hunting activities.

These sites are of scientific value from the perspective of future Piedmont archeological research. However, the low artifact/debitage densities at 38AN91 and 38AN92, as well as the severe erosion at 38AN91, which has destroyed the vertical and horizontal integrity of the artifacts, make it unlikely that any future collecting or excavation of these sites would produce significant amounts of additional information. It is therefore recommended that no additional archeological work be carried out at 38AN91 or 38AN92.

On the other hand, it is recommended that the shoreline of the project area be examined for archeological remains after January 1, 1978, when the water level in the lake is dropped. In this way, sites buried under lake sediments, as well as those sites inundated annually, may be discovered if present. It is felt, however, that there is little site potential in these low-lying areas, and, even if present, the sites will be buried under lake sediments and may not be detectable.

Nevertheless, the possibility of discovering sites in these areas cannot be precluded, and should be examined so that even negative evidence may be plugged into future Piedmont archeological research and model building.

In particular, the possible site known locally as the "Indian Mound" should be re-examined when the water level is dropped. It should then be possible to determine if in fact it is an archeological site. If it is a site, any dredging in the immediate vicinity cannot fail to have an adverse effect. The removal of sediments from the lake bottom around the site will create a void, causing the site to subside. Once the lake level is dropped and the "site" is re-examined, it will be possible to make future recommendations based on an assessment of its archeological significance and potential, if any.

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